

REMARKS

Specification

The Examiner has objected to the specification, requesting status information on the provisional and non-provisional applications. Applicants have amended the specification to include the serial numbers of pending non-provisional applications and issued patents.

Claim Objections

Applicants have amended independent claim 1 to define the terms NOC (Network Operations Center) and VLAN (Virtual Local Area Network) and to clarify that content is transmitted over a satellite content distribution network. Applicants have also amended independent claim 3 to define NOC, to address the Examiner's objection regarding the phrase "requests for content", and to overcome the Section 112 Rejections as discussed below.

Section 112 Rejections

The Examiner has rejected claim 3 under Section 112 "as being indefinite for failing to particularly point and distinctly claim the subject matter which applicant regards as the invention," stating that the limitations "the number of servers", "the number of users", and "the load balancer" have no antecedent basis. Applicants have added language to claim 3 providing antecedent bases for all three limitations. Applicants believe that these changes are sufficient to overcome the Examiners' Section 112 rejection.

Section 103 Rejections

The Examiner has rejected claims 1-3 under Section 103(a) as being unpatentable over Hartsell et al. (US Application Publication 2003/0236745) in view of Voit et al. (US Patent No. 6,829,250). Applicants have added a number of limitations to claim 1 that sufficiently distinguish it from the prior art.

The currently amended claim 1 now includes additional elements of an outbound router, a firewall, and a public VLAN, as well as their linkages. The basis for these changes can be found on pages 28 and 29 of the specification and in Figures 5 and 7, reproduced below.

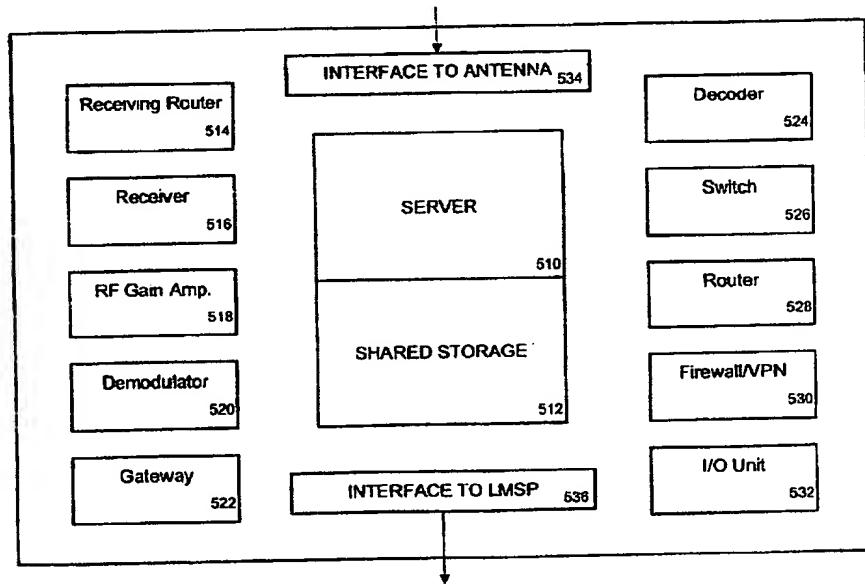


FIG. 5

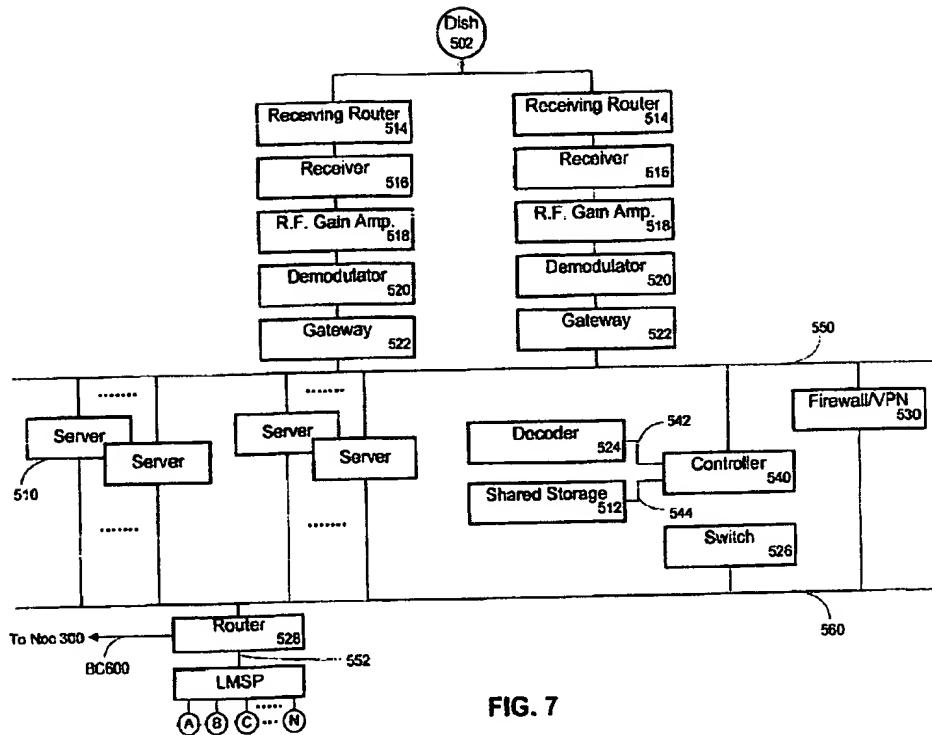


FIG. 7

Applicants are the first to have combined the unique benefits of a satellite content distribution network, a variable number of media servers, a public VLAN and private VLAN and joined them in a single, scalable edge node that takes advantage of their respective attributes. Page 8 in Applicants' specification states that their invention "allows the content providers to bypass most Internet congestion points by utilizing a hybrid of satellites and powerful land-based edge nodes." The security of a private VLAN receiving the streaming content assures content providers that there can be no unauthorized access to the receiver, even through the public VLAN, because "there is no direct link from a conventional network to this VLAN from outside EN [edge node] 500" (Applicants' specification, page 28, see also Fig. 7, private VLAN 550 and public VLAN 560). At the same time, the public VLAN provides a means for distributing the content to users in a way that can be configured

and controlled remotely with ease. Applicants combined shared storage with a variable number of media servers and a load balancer for reasons explained on page 55 of Applicants' specification:

“An EN may be implemented so that its user capacity may be increased or decreased over time by including a load balancer and a shared storage. Media servers of the EN are usually connected to the load balancer (e.g., L-4 switch) to distribute the load equally to the multiple servers. Since the media servers do not hold the content, the servers may be added or removed instantly (e.g., on-the-fly) while the EN is operating. For example, if the number of end users is increased during the operation of the EN, the servers may be added instantly. If the number of end users is decreased during the operation of the EN, the servers may be removed instantly. As will be evident to those skilled in the art, such scalability is possible because the load balancer will balance demand over whatever number of servers exist on the EN, and the shared storage means may be added or removed without affecting the availability of particular content files. The inclusion of the load balancer and shared storage provides additional benefits by allowing user demands upon the EN to be intelligently spread among the available servers, thereby preventing the EN from having to worry about which content files should be stored on which particular servers.”

Nothing in the prior art describes Applicants' invention for altering the number of servers while an edge node is operating with all of the additional features discussed above.

Even without the changes to claim 1, the combination of Hartsell and Voit would not result in Applicants' invention. The Examiner has stated “Hartsell discloses ‘a scalable edge node’ citing paragraph 0012 of Hartsell in reference. Applicants' respectfully disagree with this statement. Paragraph 0012 does not disclose a scalable edge node as invented by Applicants. Instead it discloses allocation of system resources at a network edge, based not on demand, but on SLA (Service Level Agreement) policies as follows, “Advantageously, the disclosed system and methods make possible the delivery of information management features

at the edge of a network (e.g. across single or multiple nodes) by using SLA policies to control system resource allocation to service classes (e.g., packet processing) at the network edge, etc.” (emphasis added). Using SLA policies for control is different from scaling node size based on demand and instead relates to a service provider’s performance. The website Webopedia (www.webopedia.com) defines an SLA as:

“A contract between an ASP [Application Service Provider] and the end user which stipulates and commits the ASP to a required level of service. An SLA should contain a specified level of service, support options, enforcement or penalty provisions for services not provided, a guaranteed level of system performance as relates to downtime or uptime, a specified level of customer support and what software or hardware will be provided and for what fee.”

Hartsell also gives several examples of his SLA policies in paragraph 272 as follows, “Examples of SLA policies include, but are not limited to, class/service identification parameters such as CoS, QoS, combinations thereof, etc.” None of these examples and nothing else in Hartsell suggests that an SLA policy includes changing the number of media servers during operation in response to changes in demand.

The Examiner has also referenced Figure 6 of Hartsell as showing “a variable number of media servers 310 (refer to fig 6) connected to a load balancer 305, the load balancer capable of determining which of the servers connected to it is best able to meet a user’s request for content, the number of media servers capable of being changed, while content is being received, to meet changes in demand for data (refer to paragraph 0011 and 0207).” Although paragraph 0207 and 0208 describe Hartsell’s data center as having a “number of servers” and “determining whether servers 310 or content routers 311 have resources available”, there is no disclosure of

changing the number of media servers in his data center during operation as in Applicants' invention. Having servers available is different from changing the number of servers "on the fly" because there is no disclosure of a means for increasing the number of available servers to meet higher demand. As stated above, Applicants' edge node is designed to enable changes "on the fly". Hartsell never discloses edge node changes during operation nor does he disclose how to accomplish changes "on the fly" with his edge node design without interrupting service. Additionally, Hartsell's figure 6 shows neither the public and private VLANS, each with isolated external connections, nor a firewall as depicted in Applicants' Figure 7.

With respect to Applicants' private VLAN, the Examiner states "Hartsell does not disclose...a private VLAN explicitly," and cites Voit's disclosure of a private VLAN. However, Voit's private VLAN connects multiple nodes of his network, versus Applicant's private VLAN contained within a single edge node of his network. Examiner's citation of Voit includes the following statement that teaches away from a private VLAN being contained in a single edge node. "The nodes of network 13 transport the packets for the VLAN members only to resources that are members of the identified VLAN. In this manner, the capability exists for creating logical workgroups of users and their shared resources (servers, printers, etc.), that may be physically separated from each other." (Voit, col. 18, lines 54-59, emphasis added) As stated in MPEP § 2146.2, "References cannot be combined where references teach away from the combination." Therefore, combining Hartsell and Voit would be improper, and even if combined, would not result in Applicants'

103" *In re Antonie*, 559 F.2d 618, 620, 195 USPQ 6,9 (CCPA 1977) (emphasis in original; citations omitted).

Furthermore, the Examiner has not shown any motivation to combine Hartsell and Voit that results in Applicants' claim 3. As stated in MPEP § 2142, "The initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done." The Examiner's statements fail to provide this motivation for Applicants' method of distributing content using an edge node as stated in claim 3.

For these reasons, Applicants' respectfully request that claim 3 be allowed.

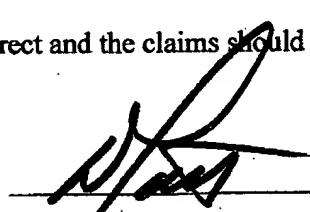
Other Prior Art

The Examiner has cited Singal (US Patent Application Publication No. 2005/0071496) as pertinent to Applicants' disclosure. Singal does not disclose a scalable edge node as delineated in Applicants' currently amended claim set.

Conclusion

For the foregoing reasons, Applicants submit that the Examiner's rejection of the claimed invention was incorrect and the claims should be allowed.

Date: September 1, 2005



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invention because the private VLAN in a single edge node is neither disclosed nor suggested.

Because of the significant architectural differences between Hartsell's edge node and that of Applicants' currently amended claim 1, as well as Voit's teaching away from Applicants' invention (i.e. the resources are physically separated from each other), Applicants believe that the currently amended claim 1 is, therefore, distinct from the prior art and respectfully request that it be allowed.

Claim 2, currently amended, discloses the limitation of enclosing the edge node in a single equipment rack. Because this claim depends from claim 1, it is not obvious for the same reasons as claim 1 is not obvious. Therefore, Applicants' respectfully request that claim 2 be allowed.

In rejecting claim 3, the Examiner has cited paragraphs 0011 and 0207 in Hartsell. Neither of these citations discloses Applicants' dynamic adjustment of the number of media servers during edge node operation as disclosed in claim 3 and in the above passage from page 55 of Applicants' specification. As stated in MPEP § 2141.02, the properties of the subject matter disclosed in the specification must be considered along with the claims:

"In determining whether the invention as a whole would have been obvious under 35 U.S.C. 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look not only to the subject matter which are inherent in the subject matter *and* are disclosed in the specification...Just as we look to a chemical and its properties when we examine the obviousness of a composition of matter claim, it is this invention *as a whole*, and not some part of it, which must be obvious under 35 U.S.C.